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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/671,832	09/29/2003	Atsushi Murakami	117250	3516

25944 7590 04/26/2007

OLIFF & BERRIDGE, PLC
P.O. BOX 19928
ALEXANDRIA, VA 22320

EXAMINER	
HUFFMAN, JULIAN D	
ART UNIT	PAPER NUMBER
2853	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/671,832	MURAKAMI ET AL.	
	Examiner	Art Unit	
	Julian D. Huffman	2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 February 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *12-14* is/are allowed.

6)☒ Claim(s) *1,4,5,8,9 and 11* is/are rejected.

7)☒ Claim(s) *3,6,7 and 10* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 4, 5, 8, 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pan et al. (6,866,359 B2) in view of Foster et al. (U.S. 6,375,299 B1).

Pan et al. discloses:

With regards to claim 1, an electronic device including a controlled part (fig. 4, element 44), comprising:

a first housing (fig. 4, element 44) that includes the controlled part (fig. 3, element 100, fig. 1, element 72) and a non-volatile first storage medium (element 78), the first storage medium stores control information regarding the controlled part (column 6, lines 35-67, the memory stores the characteristics of the piezoelectric element, which is controlled by driver circuitry, that functions as the controlled part);

a controller that is detachable from the first housing (fig. 1, the processor 52 is provided on the printer in a second housing, which is detachable from the first housing of the cartridge), reads the control information from the first storage medium when attached to the first housing and controls the controlled part based on the read control information (the processor reads the memory and controls the piezoelectric ejectors of

the cartridge based on the control information, column 6, lines 35-39), wherein the first housing includes a mechanical module (a piezoelectric element is a mechanical module) and a drive source that provides a drive force to the mechanical module (driving circuitry provides a drive force to the mechanical module, the drive circuitry being clearly shown in U.S. 6,000,773 to Murray, the entirety of which is incorporated by reference on column 6, lines 38-49 of Pan, see Murray figs. 5 and 6 and column 4, lines 38-41), and the controlled part is a driver circuit board (element 47, Murray) of the drive source; and

a power supply device capable of supplying drive power to the drive source while changing a current value or pulse width modulation duty value of the drive power (Pan discloses a power supply since one is required to power the device).

With regards to claim 4, a second housing (printer housing) that is detachable from the first housing (the cartridge of the first housing is detachable from the second printer housing) and makes up a contour of the electrical device in connection with the first housing (the first and second housings together form the electronic device or printer), wherein the first housing includes a first connector connected to the controlled part (the cartridge includes a connector which connects to the controlled part, as shown in fig. 1, arrow between processor 52 and print logic 70, further, fig. 4 and column 9, lines 8-22 describe connections between the cartridge of the first housing and the printer of the second housing), the second housing includes the controller (fig. 1, controller 52 is on the second/printer housing) and a second connector connected to the controller (the printer housing has a connector which connects to the controller, as described on column 9, lines 8-22), and the first connector and the second connector

are connected when the second housing is attached to the first housing (when the cartridge is connected to the printer, the connectors of the housings are connected).

With regards to claim 5, the second housing is attached to a bottom of the first housing (the bottom of the cartridge/first housing is attached to the second/printer housing, as seen in fig. 4).

With regards to claim 8, the first storage medium stores identification information of the controlled part and the first housing in association with each other (column 6, lines 35-67).

With regards to claim 9, the control information stored in the first storage medium is provided with different values according to operational positions of the mechanical module (electrical capacitance or resonance frequency of the piezoelectric elements is stored in the first storage medium, column 1, lines 56-column 2, line 8, the values being dependent upon the operational positions of the piezoelectric elements).

With regards to claim 11, the driver drives a motor (the driven piezoelectric actuator converts electric energy to mechanical energy and imparts motion).

Pan et al. does not disclose a detector that detects a condition of the mechanical module from a static condition to a dynamic condition, when the power supply device supplies the drive power to the drive source while changing the drive power.

Foster et al. discloses a detector (fig. 3, element 340) that detects a condition of a mechanical piezoelectric module from a static condition to a drive condition, when a power supply device (320) supplies the drive power to the drive source while changing the drive power (column 5, lines 11-23, detection and driving by a power supply are conducted simultaneously, while changing the signals output by the power supply).

It would have been obvious to one having ordinary skill in the art at the time of the invention to incorporate the detector and power supply device of Foster et al. into Pan for the purpose of providing a means to detect faulty ink ejection channels.

Allowable Subject Matter

3. Claims 3, 6, 7 and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 12-14 are allowed.

Response to Arguments

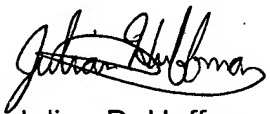
4. Applicant's arguments have been considered and are persuasive. A new grounds of rejection is provided.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian D. Huffman whose telephone number is (571) 272-2147. The examiner can normally be reached on 10:00a.m.-6:30p.m. Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Julian D. Huffman
Primary Examiner
Art Unit 2853
20 April 2007